

"CROWN" BENCH AND FLOOR SAND RAMMERS

INGERSOLL-RAND COMPANY

11 BROADWAY, NEW YORK

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Standard "Crown" Floor and Bench Rammers

THE pneumatic sand rammer for foundry and concrete work is one of those labor-saving devices which has made a permanent place for itself, even against strong opposition, on the grounds of economy, lower production cost, larger output and

"CROWN" PNEUMATIC SAND RAMMERS



Three "Crown" Floor Sand Rammers at Work on a Large Flask

improved quality of product which follow its use. It is rapidly taking its place with the penumatic hammer and drill as an industrial necessity.

Lower Cost of Castings

In the foundry the cost of power for operating one of these machines does not begin to compare with the labor saving effected by its use. Compressed air is usually available, and the added air consumption of a "Crown" Sand Rammer is practically negligible. But the savings made possible by its use justify the installing of an air compressor to operate it, even if one is not present; and the air is then available for hammers, hoists, sand blasts, etc.

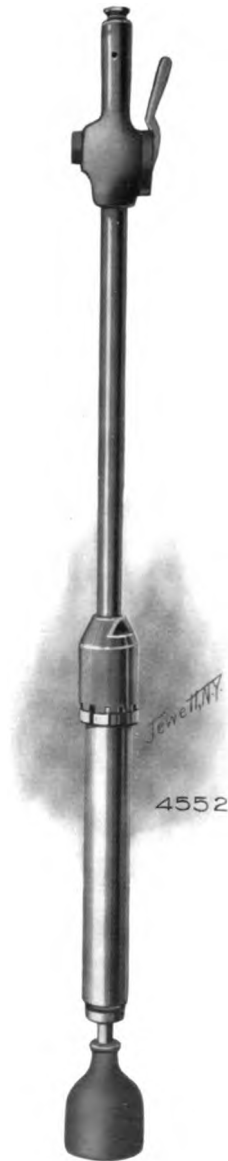
The following figures show the result of some observations made in representative foundries all over the country. They are not merely "test" figures, but show what can be accomplished with the pneumatic sand rammer under everyday working conditions.

Size of Cope	TIME IN PEINING AND RAMMING		Ratio of Reduction	Per Cent Time Saved
	By Hand	By Sand Rammer		
12' x 18" x 4"	5 min.	1 min.	1:5	80
12' x 18" x 10"	10 min.	1½ min.	1:6.6	85
6' x 3' x 6"	20 min.	3 min.	1:6.6	85
6' x 6' x 8"	35 min.	8 min.	1:4.4	77
8' x 6" x 6"	1 hour	10 min.	1:6	83
7' x 3' x 12"	1 hr. 30 min.	16 min.	1:5.6	82
15' x 30" x 16"	2 hours	27 min.	1:4.4	77
12' x 7' x 16"	2 hr. 12 min.	34 min.	1:3.9	74
87" x 159" x 10"	4 hours	40 min.	1:6	83
19' x 90" x 15"	8 hours	1 hr. 30 min.	1:5.3	81

It is to be especially noted that these figures include not only the final ramming, but the more careful peining as well; and the total time covers the completed job. In another instance a pulley 78 inches in diameter with a 24-inch face was peined and rammed complete in three hours.

These results, showing a ratio of advantage of machine over hand ramming varying from 1:3.9 up to 1:6.6, and a time saving of 74 to 85 per cent may be considered fairly representative of the reduction in time and labor cost to be effected by "Crown" Sand Rammers where intelligently used in average foundry work.

"CROWN" PNEUMATIC SAND RAMMERS



"Crown" Floor Sand Rammer (Type "20-SR")

Improved Castings

Another great advantage to be derived from the use of "Crown" Rammers lies in the fact that they produce better castings. The flasks are rammed much harder and more uniformly than is possible by hand. "Straining" in the mould, with the resultant loss of metal, may be eliminated. The better, more uniform machine ramming produces castings true to pattern, uniform in weight and quality. This avoids costly "overweight" castings and materially reduces the total cost of metal in cases where large numbers of castings are to be made from a single pattern.

The fact that these machines have been adopted in some of the largest and best organized foundries in the country is confirmation of all claims in their favor. But they are equally advantageous in the small foundry.

In Concrete Work

The increasing use of concrete in the production of building blocks, architectural forms, sewer pipe, etc., has developed another field in which the pneumatic sand rammer has demonstrated its value and economy. In this work its advantages over hand ramming are probably in the same proportion as just stated in foundry work. Lower labor cost, greater rapidity of work, larger output, and a product of uniform quality and distinct superiority — these follow the use of this machine in ramming concrete into moulds. The increasing demand for concrete forms equal to the most severe tests makes it incumbent upon the makers to produce a material which will stand the closest scrutiny, and the pneumatic sand rammer is one of the chief factors in attaining this result.

In permanent concrete construction in massive form — such as bridge and pier construction, paving, retaining walls, abutments, foundations, etc. — this machine produces an unusually solid, rock-like concrete of the highest quality.

"Crown" Sand Rammers

The "Crown" Sand Rammer takes its name from the fact that it uses the well-known Ingersoll-Rand "Crown" valve, used with such success in the "Crown" chipping and riveting hammers. This is a hardened steel spool valve, working under unbalanced air

"CROWN" PNEUMATIC SAND RAMMERS

pressure in a hardened steel valve box clamped between the cylinder and the head block of the tool. The valve mechanism is entirely enclosed and protected against dirt, a screen being interposed between the air inlet and valve mechanism.

The cylinder is of a special steel, hardened and ground in the bore; and the piston is hardened, with the rods left tough. Steel parts are oil treated and annealed. Two flats milled on the rod prevent the turning of the piston in the cylinder and the rotation of the butt or pein. The weight is carefully adjusted so that there is the minimum of jar or reaction in running. The blows are very sharp and rapid, and their number and force under complete control by the throttle.

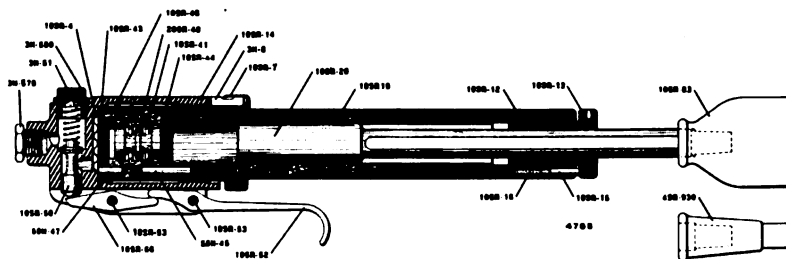
The "Crown" Bench Rammer (Type 10-SR) is a small machine weighing ten pounds and intended for working on small flasks such as are ordinarily handled on the bench. It is also used for core work.

The "Crown" Floor Rammer (Type 20-SR) is a longer, heavier tool, weighing about twenty-two pounds and intended for larger flasks upon which the man works standing.

The price of a complete rammer covers the tool bare (without hose) including the throttle, one round butt and one pein. The two latter parts fit on the piston rod on a taper. The complete specifications of the "Crown" Bench and Floor Rammers are given below.

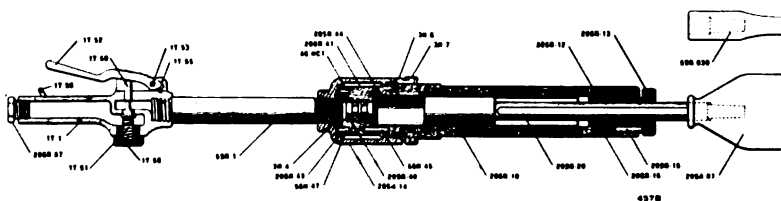
Description	Bench Rammer	Floor Rammer
Symbol	10-SR	20-SR
Cylinder Bore.....	1 inch	1½ inches
Piston Stroke.....	4 inches	5 inches
Size of Butt.....	2½ in. diam.	3½ in. diam.
Size of Pein.....	¾ in. x 2¼ in.	¾ in. x 3 in.
Free Air Consumption at 40 lbs. pressure—in cubic ft. per min.	12	12
" " " " 50 " " " " " "	14½	15
" " " " 60 " " " " " "	17	18
" " " " 70 " " " " " "	19½	21
" " " " 80 " " " " " "	22	24½
" " " " 90 " " " " " "	25	28
" " " " 100 " " " " " "	28	32
Approximate Number of Blows per minute under 80 pounds air pressure, throttle wide open.....	750	600
Weight, unboxed.....	10 pounds	22½ pounds
Length over all.....	20 inches	46 inches
Telegraph Name.....	Halsbanden	Halsbein

"CROWN" PNEUMATIC SAND RAMMERS



Duplicate Part List of "Crown" Bench Sand Rammer (Type "10-SR")

Part No.	Symbol	Name of Part	Part No.	Symbol	Name of Part
10	10SR	Cylinder	53	10SR	Throttle Lever Pin
6	3H	Cylinder Locking Key	56	10SR	Throttle Lever
7	10SR	Cylinder Locking Key Spring	570	3H	Nipple
12	10SR	Packing Washer	580	3H	Screw Plug
13	10SR	Packing Nut	41	10SR	Valve Box
15	10SR	Packing Nut Locking Pin	40	20SR	Valve
16	10SR	Packing Nut Locking Pin Spring	43	10SR	Valve Box Top Cap
20	10SR	Piston	44	10SR	Valve Box Bottom Cap
14	10SR	Head Block	45	56H	Valve Box Bottom Dowel
4	10SR	Screen	46	10SR	Valve Box Cap Dowel
50	10SR	Throttle Valve	47	56H	Valve Box Top Dowel
51	3H	Throttle Valve Spring	83	10SR	Butt
52	10SR	Throttle Trigger	930	4SR	Pin



Duplicate Part List of "Crown" Floor Sand Rammer (Type "20-SR")

Part No.	Symbol	Name of Part	Part No.	Symbol	Name of Part
1	5SR	Handle	12	20SR	Packing Leather
1	1T	Throttle Valve Body	13	20SR	Packing Nut
50	1T	Throttle Valve	15	20SR	Packing Nut Locking Pin
51	1T	Throttle Valve Spring	16	20SR	Packing Nut Locking Pin Spring
52	1T	Throttle Lever	20	20SR	Piston
53	1T	Throttle Lever Pin	41	20SR	Valve Box
55	1T	Throttle Lever Stop Pin	40	20SR	Valve
56	1T	Throttle Lever Locking Ring	43	20SR	Valve Box Top Cap
57	20SR	Nipple	44	20SR	Valve Box Bottom Cap
58	1T	Screw Plug	45	56H	Valve Box Bottom Dowel
14	20SR	Head Block	46	HC-1	Valve Box Cap Dowel
4	3H	Screen	47	56H	Valve Box Top Dowel
10	20SR	Cylinder	83	20SR	Butt
6	3H	Cylinder Locking Key	930	5SR	Pin
7	3H	Cylinder Locking Key Spring			

The Care of "Crown" Sand Rammers

It is necessary to the satisfactory operation and durability of this tool that the working parts be kept well oiled and free from dirt and grit. To lubricate the tool pour a small quantity of clean, light machine oil in the air inlet before attaching the hose. This should be done every two hours when the tool is being used constantly. Light machine oil is good to use, but our special brand of VACUUM ARCTIC AMMONIA OIL is better. Do not use thick or gritty oil, as it will cause the working parts to cut or work sluggishly. The entire tool should be taken apart at least once a week, the parts washed in kerosene, carefully put together again and oiled.

Always keep the head block, Part 14, screwed tight to the cylinder, Part 10, so as to prevent leaking between the connecting surface of the head block, valve box and cylinder. If the head block becomes loose, remove key spring, Part 7, drive out key, Part 6, and tighten the head block until one of the notches in the end of it is in line with one of the slots in the collar on the cylinder; then insert the key and put the key spring over the collar, being sure to have the notch in the key spring fit over the end of the key nearest the head block.

When ordering duplicate parts always give the SIZE and NUMBER of the Rammer, both of which are stamped on the cylinder, and specify the NUMBER and NAME of parts wanted as given in list.

WHEN RETURNING RAMMER FOR REPAIRS SHIP TO OUR FACTORY AT EASTON, PA., AND MARK NAME AND ADDRESS ON EACH PACKAGE.



"Crown" Bench Sand Rammer at Work Preparing a Mould